

What is claimed is:

1. A product comprising a film exhibiting photocatalytic property characterized in that, in 5 L of dried air containing 60 ppm hydrogen sulfide, after the film having a surface area of 400 cm² is irradiated with light for four hours by use of a day white fluorescent lamp such that the intensity of UV rays of 365 nm is 6 μ W/cm², percent decomposition of the hydrogen sulfide is at least about 20%.

2. A product according to claim 1, wherein the film exhibiting photocatalytic property has a thickness of about 0.01 to about 100 μ m.

3. A product according to claim 2, wherein the film thickness is about 0.01 to about 0.1 μ m.

4. A product according to claim 2, wherein the film thickness is about 1 to about 100 μ m.

5. A product comprising a film exhibiting photocatalytic property according to claim 1, wherein, when transmittance at 550 nm in the absence of a film exhibiting photocatalytic property is represented by "T1%," and transmittance at 550 nm in the presence of the film is represented by "T2%," the product has a portion at which the ratio of T2/T1 is at least about 0.9.

6. A product comprising a film exhibiting photocatalytic property according to claim 1, wherein, when light reflectivity at 550 nm in the absence of a film exhibiting photocatalytic property is represented by "R1%," and light reflectivity at 550 nm in the presence of the film is represented by "R2%," the product has a portion at which the ratio of R2/R1 is at least about 0.9.

7. A product according to claim 1, wherein the film exhibiting photocatalytic property has a pencil hardness of at least 2H.

8. A product according to claim 1, wherein, after the film exhibiting photocatalytic property is irradiated with light for 24 hours by use of a day white fluorescent lamp such that the intensity of UV rays of 365 nm is $6 \mu\text{W}/\text{cm}^2$, the film has a contact angle of about 20° or less with respect to water.

9. A product according to claim 8, wherein the contact angle with respect to water is about 10° or less.

10. A product according to claim 9, wherein the contact angle with respect to water is about 5° or less.

11. A product according to claim 1, wherein, after the film exhibiting photocatalytic property is irradiated

with light for 24 hours by use of a day white fluorescent lamp such that the intensity of UV rays of 365 nm is 6 $\mu\text{W}/\text{cm}^2$, and then allowed to stand in the dark for 24 hours, the film has a contact angle of about 20° or less with respect to water.

12. A product according to claim 11, wherein, after the film is allowed to stand in the dark for 24 hours, the film has a contact angle of about 10° or less with respect to water.

13. A product according to claim 12, wherein, after the film is allowed to stand in the dark for 24 hours, the film has a contact angle of about 5° or less with respect to water.

14. A product according to claim 1, wherein, after the film exhibiting photocatalytic property is subjected for 4,000 hours to an acceleration-exposure test employing a xenon arc lamp, the film has a yellowing degree of about 10 or less, and after the film is irradiated with light for 24 hours by use of a day white fluorescent lamp such that the intensity of UV rays of 365 nm is 6 $\mu\text{W}/\text{cm}^2$, the film has a contact angle of about 20° or less with respect to water.

15. A product according to claim 1, wherein the film exhibiting photocatalytic property is formed on an inorganic substrate.

16. A product according to claim 15, wherein the inorganic substrate is of metal or ceramic.

17. A product according to claim 15, wherein the inorganic substrate is at least one species selected from the group consisting of an Si compound and an Al compound.

18. A product according to claim 1, wherein the film exhibiting photocatalytic property is formed on an organic substrate.

19. A product according to claim 18, wherein the organic substrate is an organic polymer.

20. A product according to claim 19, wherein the organic polymer is at least one species selected from the group consisting of polyethylene, polypropylene, polystyrene, nylon 6, nylon 66, aramid, polyethylene terephthalate, unsaturated polyesters, polyvinyl chloride, polyvinylidene chloride, polyethylene oxide, polyethylene glycol, silicon resin, polyvinyl alcohol, vinylacetal resin, polyacetate, ABS resin, epoxy resin, vinyl acetate resin, cellulose derivatives, urethane resin, polyurethane resin,

polycarbonate resin, urea resin, fluorine resin, polyvinylidene fluoride, phenol resin, celluloid, chitin, starch sheet, acrylic resin, melamine resin, and alkyd resin.

21. A product according to claim 1, which is at least one member selected from the group consisting of building materials, machinery, vehicles, glass products, electric appliances, agricultural materials, electronic apparatus, tools, tableware, bath products, toiletry products, furniture, clothing, cloth products, fibers, leather products, paper products, sporting goods, futon, containers, eyeglasses, signboards, piping, wiring, brackets, sanitary materials, and automobile parts.

22. A method for imparting photocatalytic property and hydrophilicity to a product as recited in claim 21, wherein a light source employed for causing the product to exhibit photocatalytic property and hydrophilicity is at least one species selected from the group consisting of sunlight, a fluorescent lamp, a mercury lamp, a xenon lamp, a halogen lamp, a mercury xenon lamp, a metal halide lamp, a light-emitting diode, a laser, and flame obtained through combustion of an organic substance.

23. A product according to claim 20, wherein the cellulose derivatives are at least one species selected from cellulose and rayon.